



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

DEPARTMENT OF COMMERCE, COMMUNITY AND ECONOMIC DEVELOPMENT

Review of Previous Statewide Broadband Efforts

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A Blueprint for Alaska's Broadband Future

Updated and Revised 2019

The Denali Commission | www.denali.gov
Connected Nation | www.connectednation.org

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2014 Task Force Goals

Performance Measures that Will Define Success

Measures	Target
Download Speeds	100 Mbps
Upload Speeds	100 Mbps
Latency ¹⁸	20 milliseconds (terrestrial within Alaska)
Reach	100 percent of homes and businesses with potential access/total market served
Adoption/Usage ¹⁹	100 percent of homes and businesses with access connected; 100 percent of school and adult population
User Cost	Affordable at current rates or less
Reliability ²⁰	99.99 percent with backup systems
Progress	100 percent of Task Force recommendations enacted



2019 Task Force Goals

2019 Updated Recommendations

General Recommendations

- 01 Adopt a minimum broadband speed goal of 100 Mbps (upstream and downstream) to households and businesses throughout Alaska by 2024.
- 02 Establish a Broadband Development Office within state government or at the Denali Commission to manage progress against the updated broadband plan, as well as coordinate future strategy, planning, and policy, and lend support to the pursuit of federal funding opportunities by eligible entities.
- 03 Develop and maintain a granular broadband availability map for Alaska to track progress and precisely identify remaining coverage gaps; develop a mechanism to validate, and if warranted, challenge broadband availability data that is collected and published by the FCC.
- 04 Support the pursuit of funding opportunities to develop terrestrial middle-mile infrastructure to regions of the state that do not have it, including the Aleutian Islands, and to support satellite middle-mile solutions where fiber is too expensive or impractical to build.
- 05 Support the private sector development of additional long-haul fiber transport connections between Alaska and the Lower 48 states for the purposes of increased capacity, network diversity, resiliency, competition, and lower costs.



2019 Task Force Goals

- 06 Support the development of a carrier-neutral Internet Exchange (IX) point within Alaska to serve as a home for content and application companies and network interconnection/peering.
- 07 Establish public-private partnerships with industry innovators and entrepreneurs to accelerate broadband development and deployment within Alaska.
- 08 Identify and track critical broadband infrastructure that is reaching the end of its life cycle and support efforts to upgrade or replace it as warranted.
- 09 Encourage public and private advocacy efforts to maximize federal Universal Service Fund (USF) support for Alaska across all programs.



2019 Task Force Goals

- 10** Explore partnerships where appropriate with Canadian telecom networks at key cross border points where such partnerships could enhance network diversity and resiliency—particularly in Southeast Alaska.
- 11** Support the development of long-haul subsea fiber routes between the North Slope and Asia, northern Canada, and Europe, and to the extent practical, ensure that the main Pribilof Islands, the westernmost Aleutian Islands, and Kaktovik on the North Slope are connected as part of the design.
- 12** Continue to streamline the permitting process for broadband deployment projects to improve financial viability and shorten broadband deployment timelines.



2019 Guiding Principles

Guiding Principles for 2019 Recommendations

- 01 Fiber optic systems offer great capacity advantages and the equipment used to light the fiber can be upgraded over time to improve efficiency and throughput.
- 02 Fiber optic systems (as last-mile solutions) are most practical to deploy in areas where household/business density is relatively high and total demand exceeds 300 users.
- 03 Fiber optic systems (as middle-mile/transport solutions), while costly, are most practical to deploy along roadways or across the sea floor.
- 04 Challenges that confront fiber optic deployments (of all types) include population dispersion, terrain, ice scour, vast distances between communities, permitting, and physical accessibility for installation.
- 05 Microwave wireless systems (as middle-mile/transport solutions) are typically the most affordable, technically achievable, and highest performance terrestrial alternative to fiber optics. Radios can be swapped out as technology improves.



2019 Guiding Principles

- 06 Legacy satellite backhaul solutions are generally a last-resort option for remote and insular areas where fiber optics and microwave wireless systems are impractical, but new GEO HTS and LEO NGSO satellite networks that will be coming online in 2020 and 2021 should be explored as viable, competitive alternatives to microwave wireless system deployments.
- 07 Polar subsea projects that link the Alaska's North Slope directly to Asia, northern Canada, and Europe are encouraged if project financing and deployment are viable.
- 08 Funding should be supported for local last-mile projects where federal programs are insufficient.
- 09 More robust mobile wireless solution deployments (4G LTE and greater) are more practical and achievable when terrestrial middle-mile capacity has been improved.
- 10 As content and applications become more robust, their proximity to the end-user will become increasingly important. Establishing a carrier-neutral Internet Exchange (IX) peering point within Alaska for network interconnection and content cache-filling would increase efficiency, reduce latency, and reduce the need for traffic to be exchanged at distant IX facilities in Seattle and Portland, thereby freeing long-haul capacity for other uses.



Status of Broadband in Alaska

- **We have existing programs that are working for parts of Alaska.**
 - E-Rate, Rural Health Care Program, etc. Existing programs at FCC, USDA, etc.
- **Problem of Census Blocks and previous subsidies**
- **How to accept new funds from new programs without destroying economic model of previous and on-going programs**
- **Role of New and Disruptive Technologies**
- **Futureproofing vs. Affordability**





Alaska Network Circa 2019



ALASKA MIDDLE-MILE INFRASTRUCTURE 2019

-  Fiber
-  Microwave
-  Satellite

Map credit: Alaska Telecom Association



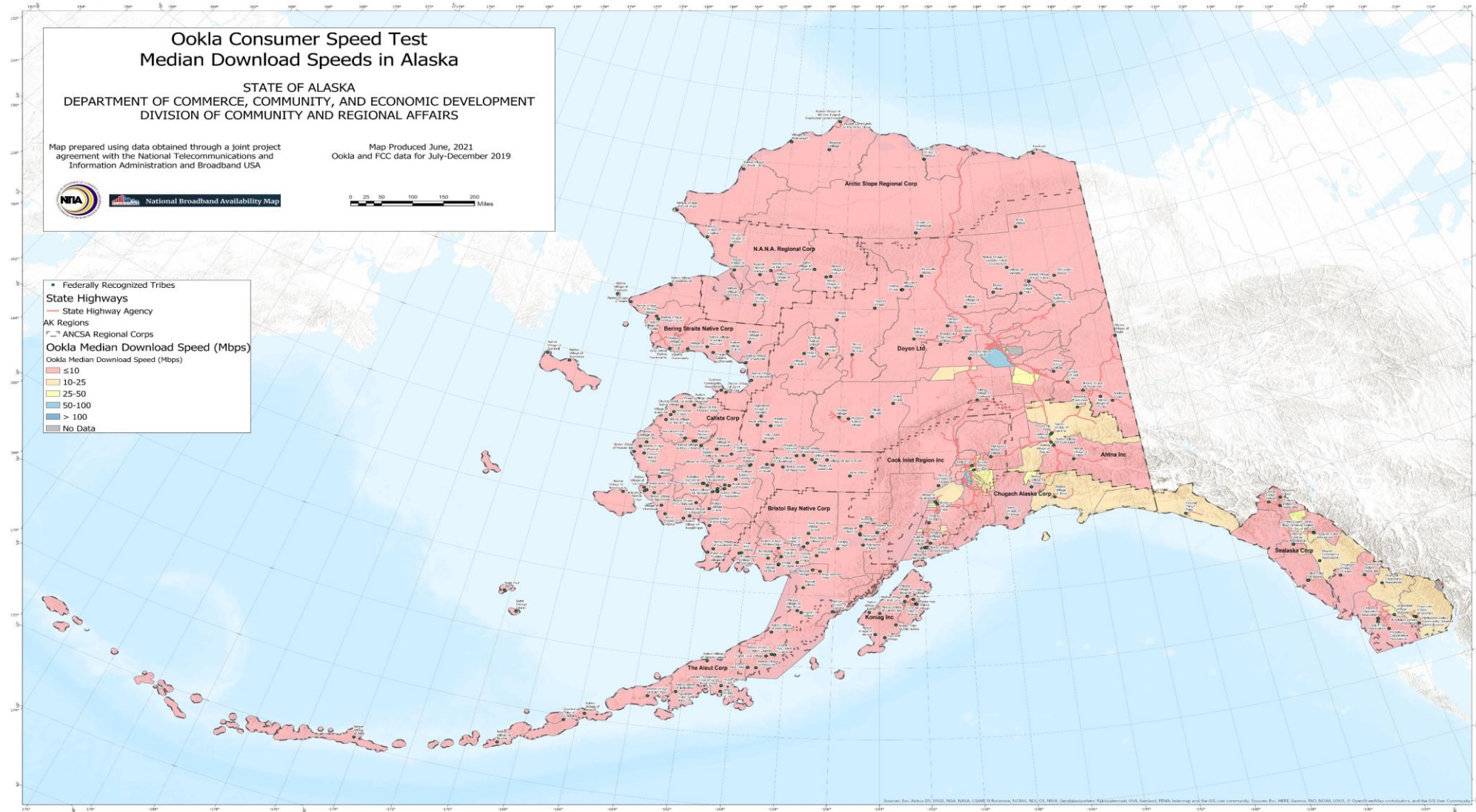
Reported Speed

SPEED TIER	SPEED AS OF JUNE 2018
10/1 Mbps	86.45%
25/3 Mbps	81.81%
100/10 Mbps	76.53%

This table outlines the percentage of Alaskans that have access to the various speed tiers of service, as described above, according to the FCC:

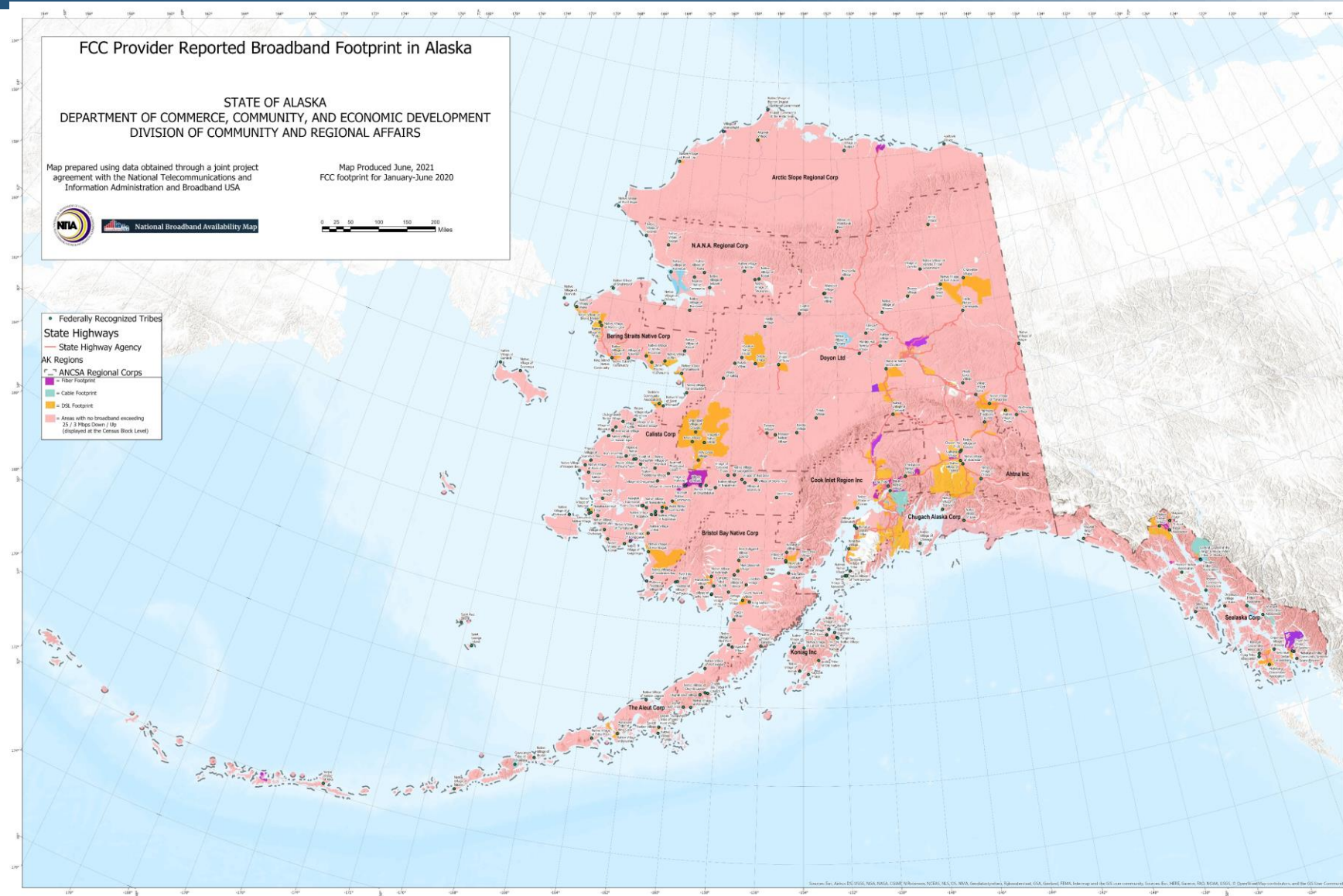


Actual Speed





FCC Reported Service Areas





GRANTS, Grants, grants

FCC

USDA

NTIA

EDA

CARE, ARPA, etc.

- Important that everyone collaborate everywhere whenever possible
- Avoid duplication of efforts
- Problems of eligibility and ineligibility



Last Mile Issue

- **Almost all Federal Programs are focused on Last Mile.**
 - Even programs that allow for middle mile still focus on Last Mile.
- **Alaska's remoteness and early adoption of Cable TV has given many communities a leg up.**
- **The Last Mile is changing nationally and Internationally**
- **The FCC's 2.5 GHZ Wireless program is a tremendous opportunity for Alaska.**
- **There is money for Last mile now. We should take it, but spend it in a way that gives strategic advantage to Alaska.**



Two Pictures of Alaska Broadband

- **“LARGER” Urban Areas being addressed.**
- **Rural/Tribal Alaska Unserved and existing programs not effective in addressing.**



Hard Facts

- **Even with Massive Federal outlay, Fiber and/or Microwave are unlikely to fully solve the Rural Problem in next decade. However, there are good plans that will significantly reduce problem.**
- **Companies like OneWeb and StarLink do not have the capacity now or in the next seven years to solve the rural demand for broadband services. Amazon and TeleSat are also emerging players.**
 - LEO Satellites have an effective life of 7 years
- **Geostationary satellites do not currently have the capacity today to solve the rural demand for broadband**
 - Geostationary Satellites have an effective life of 15-20 years
 - It takes approx. 30 months to launch a new geostationary satellite
 - LEO and GEO Satellites can be paired and combined.